



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

January 19, 2017

Mr. Brian Mikucki
Tierra Solutions, Inc.
2 Tower Center Blvd., 10th Floor
East Brunswick, NJ 08816

RE: Remedy Evaluation Report, Diamond Alkali Superfund Site – Newark, NJ,
Consent Decree Civil Action No. 89-5064

Dear Mr. Mikucki:

The United States Environmental Protection Agency (EPA), in consultation with the New Jersey Department of Environmental Protection (NJDEP), has reviewed Tierra Solutions, Inc.'s submittal, on behalf of Occidental Chemical Corporation, entitled *Remedy Evaluation Report, Diamond Alkali Superfund Site, Newark, NJ, November 2015, Revision 0* (RER). Pursuant to Section XV of the Consent Decree referenced above, attached are EPA's comments. Although Subtask 2.1 in the 2015 Final Remedy Evaluation Work Plan called for identification of modifications and improvements to the existing remedy as a separate task from the development of alternative remedies, EPA believes it is more appropriate to address this task as part of ongoing operations and maintenance. Therefore, EPA will contact you to set up a separate meeting to address comments related to the existing remedy and will provide a separate set of comments, incorporating recommendations and suggestions resulting from the review of the RER and following up on the conclusions in the Fourth Five-Year Review Report, in the near future.

EPA requests that you reply with a proposed schedule for submittal of a revised report addressing the attached comments, including development of additional alternatives, within 14 days of this letter.

We appreciate your cooperation with this effort. Please contact me if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Elizabeth Butler", is written over a horizontal line.

Elizabeth Butler, Remedial Project Manager
Emergency and Remedial Response Division

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Comment No.	Page and Section Reference	Comment	Response
1	General	Just a reminder to double-side print all letters and reports.	
2	Section 1 (page 1-2)	Delete "plan" after "remedial action".	
3	Sections 1.1 (page 1-2), 2.2 (pages 2-2 to 2-4) and 2.3 (page 2-4)	As noted in Section 2.2 of the Remedy Evaluation Work Plan, EPA had completed three Five-Year Reviews and the fourth was underway. At this time, the fourth has now been completed as well. Therefore, EPA leads the effort towards determining the first evaluation criteria from the CD, namely, the protectiveness determination. This should be clearly stated throughout the report.	
4	Section 1.2.2 (page 1-5)	The text at the top of the page would benefit from identification of the types of dioxins found e.g., which congeners were found.	
5	Section 1.2.3 (page 1-5)	<p>Historic fill does exist in the region and, by its nature, is often contaminated by metals and other contaminants commonly found in demolition debris and historical, urban-related, solid waste-like materials. However, the second sentence is misleading because it implies that dioxin and VOCs are common constituents of historic fill throughout this region. This statement must be modified to remove the terms dioxin and VOCs, unless documentation can be provided to show that these contaminant groups exist at levels of concern in historic fill in the region. Additionally, the presence of dioxin and VOCs in any fill at the Lister Site is the result of substantial hazardous substance discharges from chemical production activities on the Lister Site. As such, any fill material within the Lister Site cannot be considered historic fill, since material cannot contain any material that is substantially chemical production waste - see N.J.S.A. 58:10B-12.h.(1)*.</p> <p>[*Note: "Historic fill material does not include any material that is substantially chromate chemical production waste or any other chemical production waste or waste from processing of metal or mineral ores residues, slag or tailings."]</p>	

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6	Sections 1.2.3.1 and 1.2.3.2 (pages 1-5 to 1-7)	<p>a. Revise and shorten these sections because too much emphasis is placed on possible off-site sources of contamination and area-wide contamination. Although other sources of contamination exist in the area, the appropriate focus should be on continued control and remediation of the existing chemical sources and related soil and groundwater contamination directly associated with OU-1. This information is necessary for evaluating improved site control methods, along with development of more permanent remedial actions, to address soil and groundwater contamination associated with OU-1.</p> <p>b. The text on page 1-5 should clarify that the DNAPL observed in 2009 in two extraction wells was inadvertently discovered, and there has been no discrete investigation conducted to find DNAPL. The existing extraction wells, monitoring wells and piezometers may not be screened at depths optimal for DNAPL detection. Furthermore, the fact that DNAPL was not reported during construction of the floodwall or other remedial actions at the Lister Site might be because there was no need to look for DNAPL given the nature of the work.</p>	
7	Section 1.2.6 (page 1-8)	Supplement this section by briefly describing the waste volume involved, the manner in which these wastes were treated prior to disposal (i.e., either permanent treatment with post-treatment leach testing, or liquid absorption only) and the location where they were placed (in cell A).	
8	Section 1.2.9 (page 1-9)	Please add the depth of the slurry wall to the text.	

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9	Section 1.2.10 (page 1-9)	Add more detail to this section, including the material used, the method of construction, how deep the floodwall extends, and its depth relative to the organic silt layer. The Floodwall Record Drawing (3 of 3) (French & Parrello, 09/29/01) indicates that the bottom of tremie concrete between master piles has an elevation of -18.5 feet. It should be clarified that by the Passaic River, the floodwall extends through an organic silt layer that is thin or absent in places and into the deeper glaciofluvial sand layer.	
10	Section 1.2.12 (pages 1-9 to 1-10)	This section should discuss the history of extraction well EW-5 – operational, then out of service, then fixed just recently. The current rate of groundwater withdrawal should also be provided.	
11	Section 2.1.3 (page 2-2)	See comment 6b above.	
12	Section 2.2.1 (page 2-3)	The last sentence of the second full paragraph starting with, “Moreover...” should be deleted.	
13	Section 2.3 (page 2-4)	EPA’s 5 year reviews and their determinations should be mentioned in this section.	
14	Section 2.4 (page 2-4)	This section references Tables 1 through 3 of the 1985 FS, provided as Appendix B. These tables could not be found within Appendix B or elsewhere in the subject report. Tables 1 through 3, the ARARs for this project, should be provided in the body of the RER, and not relegated to an Appendix, depending on the length of the text.	
15	Section 2.5 (page 2-5)	Contrary to the toxicity claim in this section, a reduction in toxicity has not been achieved, because the bulk of the hazardous materials are entombed in place, without treatment rendering them “less toxic.”	
16	Section 3 (general)	Since the values determined in the PQL study are also used in the groundwater quality monitoring program, the PQLs should be set below the groundwater standards, where possible.	

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17	Section 3 (page 3-2)	As part of the NJPDES DSW Permit Equivalent, all of the 2,3,7,8-substituted PCDDs/PCDFs should be included with TEFs calculated. Once updated PQLs are obtained through the proposed work, an update to the NJPDES DSW Permit Equivalent will be needed. This will be the appropriate time to include monitoring for both 2,3,7,8-TCDD and for TCDD-TEQ, the latter of which is representative of the combined toxicity of the 17 congeners comprising the 2,3,7,8-substituted PCDDs/PCDFs, as determined through the PCDD/PCDF Toxic Equivalency (TEQ) Approach. Please refer to USEPA guidance for application of the TEQ approach to media containing PCDDs/PCDFs found at: http://www.epa.gov/sites/production/files/2013-09/documents/tefs-for-dioxin-epa-00-r-10-005-final.pdf https://semspub.epa.gov/work/11/174558.pdf	
18	Section 3.2 (page 3-5)	Fix the typo in the 3 rd sentence. It should read: "The CLP's QA program..."	
19	Section 3.3.2 Table 3 (pages 3-7 and 3-8)	Fix the typos in the 1 st column of the table. It should say "4,4'-DDT" in the headings on both pages and "Analytical Method – Source of PQL" on page 3-7.	
20	Section 3.3.8 (page 3-12)	Delete the extra "S" at the beginning of the section.	
21	Section 3.3.8 (page 3-12)	Please note: Recent Hexavalent chromium water data had associated PQLs of 5.5 ug/L from method 7199 and 10 ug/L from 7196A.	
22	Section 3.4.1 (pages 3-14 and 3-15)	Please clarify whether there would be a required minimum number of labs for the PQL study to proceed.	

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23	Section 3.4.3 (pages 3-15 to 3-17)	<p>The PQL study requires treated groundwater effluent samples to be fortified at a known, low concentration of each compound for which a PQL is to be determined. The following issues need to be addressed:</p> <p>a. If the compounds for which PQLs are to be determined are in the effluent, how will the calculation be adjusted?</p> <p>b. If the concentration of a compound for which a PQL is to be determined masks the concentration of the fortification solution, what will be the course of action?</p> <p>c. It is proposed that if a concentration for a compound for which a PQL is to be determined is found in a corresponding reagent water blank and as a result, the calculated MDL from the blanks is higher than the MDLs from the samples, the MDL value to be used to calculate the new PQL value in "Step 4" is from the blank, not the sample fortification. This procedure is questionable as one would be potentially generating a value more from a laboratory contamination issue than from a fortification of an actual sample which would be a better indication of those potential interferences that would affect the PQL.</p> <p>d. It is expected that any PQL generated should be less than those that currently exist.</p>	
24	Section 3.4.3 (pages 3-16 and 3-17)	For Step 4 in the calculation of the PQL, please clarify the rationale for using the 10X MDL.	
25	Section 3.4.3 (page 3-17)	Once the PQL Study is complete, an update to the NJPDES DSW Permit Equivalent will be needed to reflect the new PQLs. Therefore, this will also be reflected in the monthly Discharge Monitoring Reports.	

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26	Section 4 (page 4-1), Tables 4-1 through 4-6 and 6-1, Section 5.1.1 (page 5-2) and Section 6.1.1 (pages 6-2 to 6-3)	<p>a. The No Further Action remedy should not be the current remedy with no extraction of the groundwater or upkeep of the remedy. Rather, it should be the current remedy as is with continuing operations and maintenance, since a goal of this review is to determine if any remedies now exist that could be more protective than the current in-place remedy. Revise all sections describing the No Further Action alternative including the screening against the 9 criteria.</p> <p>b. Generally, the remedial alternatives list seems too short. Other alternatives that could be developed and considered include:</p> <ul style="list-style-type: none"> - Targeted Excavation (Cell A) and Modified Containment - Bioremediation - Incineration <p>Note: Subtask 2.1 in the REWP called for identification of modifications and improvements to the existing remedy as a separate task from the development of alternative remedies, however, this does not seem to be included in this report. Since it is more appropriate to address this task as part of ongoing operations and maintenance (O&M), EPA will provide a separate set of comments related to O&M activities and will set up a separate meeting to address these comments.</p>	
27	Section 5.1.2 (page 5-2)	This section should be expanded to clarify, to the extent it is known, the depth of the fill unit soils contaminated above standards, and the depth of the sands contaminated above standards, if the entire depth of the fill unit soils is contaminated above standards. Also, please clarify whether excavation of a portion of the fill unit soils to then be capped is worth consideration.	
28	Section 5.1.3 (page 5-3)	Additional information on the historical data for the soils should be provided in this section.	
29	Section 6.1.2.2 (page 6-4)	Clarify how the potential exposure pathway to COCs in groundwater would be eliminated through Alternative 2. Since the groundwater is already contaminated, there would still be a need for ongoing pump and treatment or some other treatment.	

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30	Short-Term Effectiveness and Overall Protection of Human Health and the Environment portions of Section 6.1 (pages 6-2 to 6-10) and 7.1 (pages 7-2 to 7-3), Table 6-1	Worker health and safety should not be included in this evaluation, as the design phase should include the appropriate considerations to ensure worker health and safety during implementation. Therefore, remove mention of worker considerations throughout the evaluation.	
31	Section 7.1.5 (page 7-3)	Clarify where the 30 year estimate came from for the O&M needs.	
32	Section 7.1.6 (page 7-4)	Clarify what some of the mitigation requirements could include regarding the demolition and removal activities. Also, were steps taken to attempt to identify disposal and incineration locations? If so, provide further information on that in this section.	
33	Tables 4-1 to 4-6	Although several sections of text in Section 6, "Overall Protection of Human Health and the Environment" discuss potential exposure and safety risks for some of the alternatives, these are not included under the list of disadvantages in the tables for those alternatives. These risks should be added to the tables.	

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34	Table 4-2, Disadvantages	<p>a. Shoring would be needed. However, through engineering and design work, a progressive excavation could be performed to safely address the pressures and forces on the flood wall and excavation sidewall. In addition, existing infrastructure may assist with maintaining favorable conditions during construction and therefore could be retained, to the extent that it is useful and feasible, during site excavation.</p> <p>b. Disposal options for dioxin impacted wastes are limited, but not unavailable. At a minimum, technologies and facilities capable of treatment and disposal for dioxin contaminated soil, debris and groundwater treatment residuals should be identified.</p> <p>c. The potential lack of suitable backfill volume for the Lister Site is not necessarily an obstacle to the implementation of Remedial Alternative 2. Additional information is required. First, the approximate volume needed to re-establish pre-remedial grade should be calculated. Second, an evaluation should be presented on availability of backfill volumes through use of both clean fill and alternative fill materials that could be used for this site (NJDEP Fill Material Guidance for Site Remediation Program Sites, April 2015).</p> <p>d. Given current site elevations, not all phases of excavation work are expected to require continuous de-watering. Also, provisions for minimizing active excavation areas (to assist with maintaining safe shoring pressures) may result in more manageable volumes of water for storage, treatment and disposal. Pre-treatment in the existing Waste Water Treatment Plant (WWTP) is expected with transport and disposal (based on sampling results) to a public WWTP or the Passaic River. In addition, once estimates of expected wastewater volumes are derived, adaptations to the existing system can be considered to increase processing volumes.</p>	

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35	Table 4-2, Conclusion	The conclusion underestimates the expected reduction in environmental exposures that would occur with site-wide excavation. For example, the text limits the benefits of Remedial Alternative 2 to: "...preventing exposure to surface soils and preventing mass transport of COCs in groundwater..." These are both true, however, site-wide excavation would remove all major contaminant sources and much residual contamination, so exposure to nearly all contaminated media, not just surface soils, would be prevented.	
36	Table 4-3, Disadvantages	The same disadvantages are listed for Remedial Alternative 3, as for Remedial Alternative 2. However, Remedial Alternatives 2 and 3 are not the same. Far less contaminated material would be excavated from OU-1 under Remedial Alternative 3 than under Remedial Alternative 2, as it is anticipated that 50% or less of the contaminated materials contained in OU1 would be removed under Remedial Alternative 3. Therefore, Remedial Alternative 3 is expected to present a lower degree of difficulty to implement than Remedial Alternative 2 and it follows that the obstacles to its implementation would be of a lesser magnitude than those associated with Remedial Alternative 3.	
37	Table 4-3, Effectiveness	For this and all alternative descriptions, it is unclear why exposure concerns are limited to "surface soils" in the remedial alternative screening. The term "surface soils" should be changed to "contaminated soils" and evaluated accordingly.	
38	Figures	Include an updated cross section figure showing accurate slurry and flood wall depths, monitoring wells and water levels	

